IDS-2

DERWENT-ACC-NO: 1988-106757

DERWENT-WEEK: 199741

TITLE: Cooling exothermic reaction - by tubes delivering liq. into reactor core to form vapour bubbling through maintained liq. layer

INVENTOR: DALLMEYER, H; STEIN, H

PATENT-ASSIGNEE: BAYER AG[FARB]

PRIORITY-DATA: 1986DE-3635217 (October 16, 1986)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 263935 A	April 20, 1988	G	005	N/A
DE 3635217 A	April 28, 1988	N/A	004	N/A
JP 63104645 A	May 10, 1988	N/A	000	N/A
BR 8704098 A	May 24, 1988	N/A	000	N/A
DE 3635217 C	February 8, 1990	N/A	000	N/A
EP 263935 B	May 2, 1990	N/A	000	N/A
DE 3762484 G	June 7, 1990	N/A	000	N/A
ES 2015559 B	September 1, 1990	N/A	000	N/A
US 5387396 A	February 7, 1995	N/A	004	G05D 009/00
JP 95024757 B2	March 22, 1995	N/A	000	B01J 019/00

DESIGNATED-STATES: BE DE ES FR BE DE ES FR

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APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
EP 263935A	N/A	1987EP-0111359	August 6, 1987
DE 3635217A	N/A	1986DE-3635217	October 16, 1986
JP 63104645A	N/A	1987JP-0191531	August 1, 1987
US 5387396A	Div ex	1987US-0106077	October 7, 1987
US 5387396A	N/A	1991US-0704575	May 22, 1991

JP 95024757B2 N/A 1987JP-0191531 August 1, 1987
JP 95024757B2 Based on JP 63104645 N/A

INT-CL (IPC): B01J008/00, B01J014/00 , B01J019/00 , B01J019/18 , C07C085/24 , C07C209/68 , C12M001/02 , F28D007/00 , G05D009/00

ABSTRACTED-PUB-NO: DE 3635217C

BASIC-ABSTRACT:

Heat developed in an exothermic reactor is removed on transfer to cooling liq. inside boiling tubes, with closed lower ends, vertically mounted in the reactor. The open upper ends of the tubes, which are of single-wall construction, end in an annular plate forming the floor of a liq. distribution chamber in which cooling liq. (esp. water), maintained at fixed depth by a level controller, descends each tube interior in heat-exchanging counterflow with vapour rising from the evaporated liq. Above the plate floor the vapour rises through the liq. layer to be discharged, or to have the collected heat utilised. Any condensate becomes part of the cooling liq. supply.

ADVANTAGE - Small temp. drop across boiling tube walls prolongs their service life.

ABSTRACTED-PUB-NO: EP 263935A

EQUIVALENT-ABSTRACTS:

An exothermic reaction takes place in the stirred lower section of a reactor into whose base the new material is fed, with prod. extracted from a side wall. In the flangedly attached upper section is an annular chamber, enclosed on all sides. From the annular chamber floor a large number of tubes with closed lower ends project into the reactor space, and carry cooling water, steam produced from the cooling water rises in counterflow within the single-walled tubes and leaves the annular chamber via a cover aperture. A valve in the water inlet-feeder responds to level measurements in the chamber to ensure that level is kept constant. ADVANTAGE - Effective cooling is provided by structurally simple system, and entire upper section with projecting tubes is readily extracted for cleaning and maintenance.

(4pp)

EP 263935B

A cooling process for exothermic reactions, more particularly in a

stirred reactor, cooling liquid being fed continuously from above to vertical boiling tubes and the vapour formed being removed upwards in countercurrent to the cooling liquid, characterized by the following features in combination: (a) the vapour directly contacts the cooling liquid in countercurrent in the boiling tubes; (b) the orifices of the boiling tubes are continuously flooded over by cooling liquid; and (c) the vapour issuing from the boiling tubes is continuously removed through the flooding cooling liquid.

(6pp)

US 5387396A

Stirrer reactor for carrying out exothermic reactions comprises a closed container (1) which has a partition (9); downwardly projecting single walled cooling tubes (10) closed at their lower ends are welded to partition (19). Reaction chamber (5) is situated in lower part (2) of the container (1) underneath the partition (9). Reaction chamber (5) has inlet (4) for introduction of substances which are to undergo reaction, and reaction product outlet (6). Distributing and condensate collecting chamber (18) is situated above the partition (9). It distributes cooling fluid over the partition (9) whilst collecting condensate. Chamber (18) has inlet (19) for cooling fluid and discharge outlet (20) for the vapour produced. Valve is arranged in inlet (19). Filling level regulator (21) associated with the chamber (18) acts on the valve.

USE/ADVANTAGE - Reactor for carrying out exothermic reactions. More partic. Stirrer reactor with simplified cooling system for providing cooling during exothermic reactions. It is suitable for hydrogenation of aromatic amines with a suspended solid hydrogenation catalyst. Large quantities of heat can be removed per unit time. All the boiling tubes are constantly supplied with cooling liq. Uniform heat transfer is achieved in every part of the cooling tubes and ensures long tube service life. Heat stored in vapour can be recovered which has economic advantages. Resulting condensate can be returned to the boiling tubes as cooling fluids. Simplified cooling system increases cooling effect. Heat transfer in exothermic reactions is improved.

CHOSEN-DRAWING: Dwg.0/1 Dwg.1/1

TITLE-TERMS: COOLING EXOTHERMIC REACT TUBE DELIVER LIQUID REACTOR CORE FORM VAPOUR BUBBLE THROUGH MAINTAIN LIQUID LAYER

DERWENT-CLASS: J04 Q78

CPI-CODES: J04-X; J08-D03;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1988-047892

PUB-NO: EP000263935A2

DOCUMENT-IDENTIFIER: EP 263935 A2

TITLE: Process for cooling exothermal reactions and a reactor, particularly a stirrer reactor, for carrying out exothermal reactions.

PUBN-DATE: April 20, 1988

INVENTOR-INFORMATION:

NAME	COUNTRY
DALLMEYER, HERMANN DR	N/A
STEIN, HARALD DIPL-ING	N/A

ASSIGNEE-INFORMATION:

NAME	COUNTRY
BAYER AG	DE

APPL-NO: EP87111359

APPL-DATE: August 6, 1987

PRIORITY-DATA: DE03635217A (October 16, 1986)

INT-CL (IPC): B01J019/18

EUR-CL (EPC): B01J008/08 , B01J019/00 , C07C085/24 , B01J019/18 , F28D007/12

US-CL-CURRENT: 422/200

ABSTRACT:

CHG DATE=19990617 STATUS=O>1. A cooling process for exothermic reactions, more particularly in a stirred reactor, cooling liquid being fed continuously from above to vertical boiling tubes (10) and the vapour formed being removed upwards in countercurrent to the cooling liquid, characterized by the following features in combination : a) the vapour directly contacts the cooling liquid in countercurrent in the boiling tubes (10), b) the orifices of the boiling tubes (10) are continuously flooded over by cooling liquid and c) the vapour issuing from the boiling tubes (10) is continuously removed through the flooding cooling liquid.